

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1           **Claim 1 (currently amended):**   A waveform equalizer  
2    comprising:  
3           an equalizing filter unit including a delay circuit  
4    with a tap;  
5           a discriminator which decodes an output signal of said  
6    equalizing filter unit;  
7           tap arrangement control means which controls a tap  
8    arrangement of said equalizing filter unit; and  
9           tap coefficient monitoring unit which monitors a tap  
10   coefficient of said equalizing filter unit, and changes the  
11   tap arrangement of said equalizing filter unit so as to  
12   restart a starting step of the equalizing steps-filter unit  
13   for equalizing a reception signal, depending upon a change  
14   state of the tap coefficient used while the reception  
15   signal is equalized.

1           **Claim 2 (original):**   A waveform equalizer equipped  
2    comprising:  
3           an equalizing filter unit including a delay circuit  
4    with a tap;  
5           a discriminator which decodes an output signal of said  
6    equalizing filter unit;

7           tap arrangement control means which controls a tap  
8   arrangement of said equalizing filter unit; and  
9           a tap coefficient monitoring unit which monitors a tap  
10   coefficient of said equalizing filter unit, and changes the  
11   tap arrangement of said equalizing filter unit so as to  
12   restart reception signal equalizing steps from a  
13   preselected step prior to the present step thereof while  
14   said reception signal is equalized, depending upon a change  
15   state of the tap coefficient during the equalization of  
16   said reception signal.

1           **Claim 3 (currently amended):**        waveform equalizer  
2   equipped comprising:

3           an equalizing filter unit including a delay circuit  
4   with a tap;

5           a discriminator which decodes an output signal of said  
6   equalizing filter unit;

7           tap arrangement control means which controls a tap  
8   arrangement of said equalizing filter unit;

9           a tap coefficient monitoring unit which performs an  
10   operation of monitoring ~~monitors~~ a tap coefficient of said  
11   equalizing filter unit[[,]] and ~~changes~~ changing the tap  
12   arrangement of said equalizing filter unit so as to restart  
13   reception signal equalizing steps from a preselected step  
14   prior to the present step thereof while said reception  
15   signal is equalized, depending upon a change state of the

16 tap coefficient during the equalization of said reception  
17 signal, and further so as to repeatedly perform said  
18 operation, depending upon a change condition of the tap  
19 coefficient while restarting the equalization of said  
20 reception signal.

1       **Claim 4 (original):** A waveform equalizer as claimed  
2 in any one of the preceding claims 1, 2, and 3, wherein  
3 said tap coefficient monitoring unit monitors only a  
4 specific tap, and when a sharp change in a tap coefficient  
5 of said specific tap is detected, said tap coefficient  
6 monitoring unit instructs that the tap arrangement of said  
7 equalizing filter unit is changed so as to restart the  
8 equalization of the reception signal.

1       **Claim 5 (original):** A waveform equalizer as claimed  
2 in any one of the preceding claims 1, 2, and 3, wherein  
3 said tap coefficient monitoring unit monitors only a  
4 specific tap, and when dispersion of a change amount of  
5 said tap coefficient exceeds a certain threshold value,  
6 said tap coefficient monitoring unit instructs that the tap  
7 arrangement of said equalizing filter unit is changed so as  
8 to restart the equalization of the reception signal.

1       **Claim 6 (original):** A waveform equalizer as claimed  
2 in any one of the preceding claims 1, 2 and 3, wherein said

3 tap arrangement control means further comprising an  
4 impulse response predicting device for predicting an  
5 impulse response of a transfer path; and  
6 wherein said tap arrangement control means changes the  
7 tap arrangement of said equalizing filter unit in such a  
8 manner that said tap arrangement becomes suitable for the  
9 next impulse having a large pulse component in response to  
10 an impulse response predicted by a reference signal.

1 **Claim 7 (original):** A waveform equalizer as claimed  
2 in any one of the preceding claims 1, 2 and 3, wherein said  
3 tap arrangement control means comprising an impulse  
4 response predicting device for predicting an impulse  
5 response of a transfer path; and  
6 wherein said tap arrangement control means changes the  
7 tap arrangement of said equalizing filter unit in such a  
8 manner that said tap arrangement becomes optimum with  
9 respect to an impulse response predicted by both the  
10 equalized output of said discriminator and a condition of  
11 the reception signal.

1 **Claim 8 (currently amended):** A mobile station  
2 wireless apparatus equipped with a waveform equalizer  
3 capable of removing an adverse influence caused by  
4 frequency selective fading, said ~~wave form~~ waveform  
5 equalizer comprising:

6           an equalizing filter unit including a delay circuit  
7   with a tap;  
8           a discriminator which decodes an output signal of said  
9   equalizing filter unit;  
10          tap arrangement control means which controls a tap  
11   arrangement of said equalizing filter unit; and  
12          a tap coefficient monitoring unit which monitors a tap  
13   coefficient of said equalizing filter unit, and changes the  
14   tap arrangement of said equalizing filter unit so as to  
15   restart a starting step of the equalizing steps-filter unit  
16   for equalizing a reception signal, depending upon a change  
17   state of the tap coefficient used while the reception  
18   signal is equalized.

1           **Claim 9 (original):**           mobile station wireless  
2   apparatus equipped with a waveform equalizer capable of  
3   removing an adverse influence caused by frequency selective  
4   fading, said waveform equalizer comprising:

5           an equalizing filter unit including a delay circuit  
6   with a tap;  
7           a discriminator which decodes an output signal of said  
8   equalizing filter unit;  
9           tap arrangement control means which controls a tap  
10   arrangement of said equalizing filter unit; and  
11          a tap coefficient monitoring unit which monitors a tap  
12   coefficient of said equalizing filter unit, and changes the

13 tap arrangement of said equalizing filter unit so as to  
14 restart reception signal equalizing steps from a  
15 preselected step prior to the present step thereof while  
16 said reception signal is equalized, depending upon a change  
17 state of the tap coefficient during the equalization of  
18 said reception signal.

1 Claim 10 (currently amended): mobile station  
2 wireless apparatus equipped with a waveform equalizer  
3 capable of removing an adverse influence caused by  
4 frequency selective fading, said waveform equalizer  
5 comprising:

6 an equalizing filter unit including a delay circuit  
7 with a tap;

8 a discriminator which decodes an output signal of said  
9 equalizing filter unit;

10 tap arrangement control means which controls a tap  
11 arrangement of said equalizing filter unit; and

12 a tap coefficient monitoring unit which performs and  
13 operation of monitoring ~~monitors~~ a tap coefficient of said  
14 equalizing filter unit ~~[[,]]~~ and ~~changes~~ changing the tap  
15 arrangement of said equalizing filter unit so as to restart  
16 reception signal equalizing steps from a preselected step  
17 prior to the present step thereof while said receptions  
18 signal is equalized, depending upon a change state of the  
19 tap coefficient during the equalization of said reception

20 signal; and further so as to repeatedly perform said  
21 operation, depending upon a change condition of the tap  
22 coefficient while restarting the equalization of said  
23 reception signal.

1           **Claim 11 (currently amended):**           mobile station  
2 wireless apparatus equipped with a waveform equalizer  
3 capable of removing an adverse influence caused by  
4 frequency selective fading, said waveform equalizer  
5 comprising:

6           an equalizing filter unit including a delay circuit  
7 with a tap;

8           a discriminator which decodes an output signal of said  
9 equalizing filter unit;

10          tap arrangement control means which controls a tap  
11 arrangement of said equalizing filter unit;

12          a tap coefficient monitoring unit which monitors a tap  
13 coefficient of said equalizing filter unit; and

14          detector means which detects a moving speed of the  
15 mobile station wireless apparatus,

16          wherein when the moving speed is higher than a  
17 preselected threshold value, the tap arrangement of said  
18 equalizing filter unit is changed so as to restart a  
19 starting step of the equalizing steps ~~filter unit~~ for  
20 equalizing a reception signal, depending upon a change

21 state of the tap coefficient used while the reception  
22 signal is equalized.

1           **Claim 12 (currently amended):**           mobile station  
2 wireless apparatus equipped with a ~~wave form~~ waveform  
3 equalizer capable of removing an adverse influence caused  
4 by frequency selective fading, said waveform equalizer  
5 comprising:

6           an equalizing filter unit including a delay circuit  
7 with a tap;

8           a discriminator which decodes an output. signal of  
9 said equalizing filter unit;

10          tap arrangement control means which controls a tap  
11 arrangement of said equalizing filter unit;

12          a tap coefficient monitoring unit which monitors a tap  
13 coefficient of said equalizing filter unit; and

14          detector means which detects a moving speed of the  
15 mobile station wireless apparatus,

16          wherein when the moving speed is higher than a  
17 preselected threshold value, the tap arrangement of said  
18 equalizing filter unit is changed so as to restart  
19 reception signal equalizing steps from a preselected step  
20 prior to the present step thereof while said reception  
21 signal is equalized, depending upon a change state of the  
22 tap coefficient during the equalization of said reception  
23 signal.



1           **Claim 13 (currently amended):**           mobile station  
2   wireless apparatus equipped with a waveform equalizer  
3   capable of removing an adverse influence caused by  
4   frequency selective fading, said waveform equalizer  
5   comprising:  
6           an equalizing filter unit including a delay circuit  
7   with a tap;  
8           a discriminator which decodes an output signal of said  
9   equalizing filter unit;  
10          tap arrangement control means which controls a tap  
11   arrangement of said equalizing filter unit;  
12          a tap coefficient monitoring unit which monitors a tap  
13   coefficient of said equalizing filter unit; and  
14          detector means which detects a moving speed of the  
15   mobile station wireless apparatus,  
16          wherein when the moving speed is higher than a  
17   preselected threshold value, an operation is performed in  
18   which the tap arrangement of said equalizing filter unit is  
19   changed so as to restart reception signal equalizing steps  
20   from a preselected step prior to the present step thereof  
21   while said reception signal is equalized, depending upon a  
22   change state of the tap coefficient during the equalization  
23   of said reception signal; and further so as to repeatedly  
24   perform said operation, depending upon a change condition

25 of the tap coefficient while restarting the equalization of  
26 said reception signal.

1       **Claim 14 (currently amended):** A base station wireless  
2 apparatus equipped with a waveform equalizer capable of  
3 removing an adverse influence caused by frequency selective  
4 fading, said waveform equalizer comprising:  
5       an equalizing filter unit including a delay circuit  
6 with a tap;  
7       a discriminator which decodes an output signal of said  
8 equalizing filter unit;  
9       tap arrangement control means which controls a tap  
10 arrangement of said equalizing filter unit; and  
11       a tap coefficient monitoring unit which monitors a tap  
12 coefficient of said equalizing filter unit, and changes the  
13 tap arrangement of said equalizing filter unit so as to  
14 restart a starting step of the equalizing steps filter unit  
15 for equalizing a reception signal, depending upon a change  
16 state of the tap coefficient used while the reception  
17 signal is equalized.

1       **Claim 15 (original):** A base station wireless  
2 apparatus equipped with a waveform equalizer capable of  
3 removing an adverse influence caused by frequency selective  
4 fading, said waveform equalizer comprising:

5           an equalizing filter unit including a delay circuit  
6   with a tap;  
7           a discriminator which decodes an output signal of said  
8   equalizing filter unit;  
9           tap arrangement control means which controls a tap  
10   arrangement of said equalizing filter unit; and  
11           a tap coefficient monitoring unit which monitors a tap  
12   coefficient of said equalizing filter unit, and changes the  
13   tap arrangement of said equalizing filter unit so as to  
14   restart reception signal equalizing steps from a  
15   preselected step prior to the present step thereof while  
16   said reception signal is equalized, depending upon a change  
17   state of the tap coefficient during the equalization of  
18   said reception signal.

1           **Claim 16 (currently amended):** A base station wireless  
2   apparatus equipped with a ~~wave form~~ waveform equalizer  
3   capable of removing an adverse influence caused by  
4   frequency selective fading, said waveform equalizer  
5   comprising:

6           an equalizing filter unit including a delay circuit  
7   with a tap;  
8           a discriminator which decodes an output signal of said  
9   equalizing filter unit;  
10           tap arrangement control means which controls a tap  
11   arrangement of said equalizing filter unit; and

12           a tap coefficient monitoring unit which performs an  
13 operation of monitoring ~~monitors~~ a tap coefficient of said  
14 equalizing filter unit[[,]] and ~~changes~~ changing the tap  
15 arrangement of said equalizing filter unit so as to restart  
16 reception signal equalizing steps from a preselected step  
17 prior to the present step thereof while said reception  
18 signal is equalized, depending upon a change state of the  
19 tap coefficient during the equalization of said reception  
20 signal; and further so as to repeatedly perform said  
21 operation, depending upon a change condition of the tap  
22 coefficient while restarting the equalization of said  
23 reception signal.

1           **Claim 17 (currently amended):** A mobile communication  
2 system having a base station and a mobile station, in which  
3 at least one of said base station and said mobile station  
4 is equipped with a waveform equalizer capable of removing  
5 an adverse influence caused by frequency selective fading,  
6 said waveform equalizer comprising:

7           an equalizing filter unit including a delay circuit  
8 with a tap;

9           a discriminator which decodes an output signal of said  
10 equalizing filter unit;

11          tap arrangement control means which controls a tap  
12 arrangement of said equalizing filter unit; and

13           a tap coefficient monitoring unit which monitors a tap  
14           coefficient of said equalizing filter unit, and changes the  
15           tap arrangement of said equalizing filter unit so as to  
16           restart a starting step of the equalizing steps filter unit  
17           for equalizing a reception signal, depending upon a change  
18           state of the tap coefficient used while the reception  
19           signal is equalized.

1           **Claim 18 (original):** A mobile communication system  
2           having a base station and a mobile station, in which at  
3           least one of said base station and said mobile station is  
4           equipped with a waveform equalizer capable of removing an  
5           adverse influence caused by frequency selective fading,  
6           said waveform equalizer comprising:

7           an equalizing filter unit including a delay circuit  
8           having a tap;

9           a discriminator which decodes an output signal of said  
10          equalizing filter unit;

11          tap arrangement control means which controls a tap  
12          arrangement of said equalizing filter unit; and

13          a tap coefficient monitoring unit which monitors a tap  
14          coefficient of said equalizing filter unit, and changes the  
15          tap arrangement of said equalizing filter unit so as to  
16          restart reception signal equalizing steps from a  
17          preselected step prior to the present step thereof while  
18          said reception signal is equalized, depending upon a change

19 state of the tap coefficient during the equalization of  
20 said reception signal.

1       **Claim 19 (currently amended):** A mobile communication  
2 system having a base station and a mobile station, in which  
3 at least one of said base station and said mobile station  
4 is equipped with a waveform equalizer capable of removing  
5 an adverse influence caused by frequency selective fading,  
6 said waveform equalizer comprising:

7       an equalizing filter unit including a delay circuit  
8 with a tap;

9       a discriminator which decodes an output signal of said  
10 equalizing filter unit;

11       tap arrangement control means which controls a tap  
12 arrangement of said equalizing filter unit; and

13       a tap coefficient monitoring unit for performing an  
14 operation of monitoring a tap coefficient, of said  
15 equalizing filter unit ~~changes~~ changing the tap  
16 arrangement of said equalizing filter unit so as to restart  
17 reception signal equalizing steps from a preselected step  
18 prior to the present step thereof while said reception  
19 signal is equalized, depending upon a change state of the  
20 tap coefficient during the equalization of said reception  
21 signal; and further so as to repeatedly perform said  
22 operation, depending upon a change condition of the tap

23 coefficient while restarting the equalization of said  
24 reception signal.

1           **Claim 20 (currently amended):** A mobile communication  
2 system having a base station and a mobile station, in which  
3 said mobile station is equipped with a ~~wave form~~ waveform  
4 equalizer capable of removing an adverse influence caused  
5 by frequency selective fading, said waveform equalizer  
6 comprising:

7           an equalizing filter unit including a delay circuit  
8 with a tap;

9           a discriminator which decodes an output signal of said  
10 equalizing filter unit;

11           tap arrangement control means which controls a tap  
12 arrangement of said equalizing filter unit;

13           a tap coefficient monitoring unit which monitors a tap  
14 coefficient of said equalizing filter unit; and

15           detector means which detects a moving speed of the  
16 mobile station wireless apparatus,

17           wherein when the moving speed is higher than a  
18 preselected threshold value, the tap arrangement of said  
19 equalizing filter unit is changed so as to restart a  
20 starting step of the equalizing steps ~~filter unit~~ for  
21 equalizing a reception signal, depending upon a change  
22 state of the tap coefficient used while the reception  
23 signal is equalized.

1           **Claim 21 (original):** A mobile communication system  
2   having a base station and a mobile station, in which said  
3   mobile station is equipped with a waveform equalizer  
4   capable of removing an adverse influence caused by  
5   frequency selective fading, said waveform equalizer  
6   comprising:  
7           an equalizing filter unit including a delay circuit  
8   with a tap;  
9           a discriminator which decodes an output signal of said  
10   equalizing filter unit;  
11          tap arrangement control means which controls a tap  
12   arrangement of said equalizing filter unit;  
13          a tap coefficient monitoring unit which monitors a tap  
14   coefficient of said equalizing filter unit; and  
15          detector means which detects a moving speed of the  
16   mobile station wireless apparatus,  
17          wherein when the moving speed is higher than a  
18   preselected threshold value, the tap arrangement of said  
19   equalizing filter unit is changed so as to restart  
20   reception signal equalizing steps from a preselected step  
21   prior to the present step thereof while said reception  
22   signal is equalized, depending upon a change state of the  
23   tap coefficient during the equalization of said reception  
24   signal.



1           **Claim 22 (currently amended):** A mobile communication  
2     system having a base station and a mobile station, in which  
3     said mobile station is equipped with a waveform equalizer  
4     capable of removing an adverse influence caused by  
5     frequency selective fading, said waveform equalizer  
6     comprising:

7           an equalizing filter unit including a delay circuit  
8     with a tap;

9           a discriminator which decodes an output signal of said  
10    equalizing filter unit;

11          tap arrangement control means which controls a tap  
12    arrangement of said equalizing filter unit;

13          a tap coefficient monitoring unit which monitors a tap  
14    coefficient of said equalizing filter unit; and

15          detector means which detects a moving speed of the  
16    mobile station wireless apparatus,

17          wherein when the moving speed is higher than a  
18    preselected threshold value, an operation is performed in  
19    which the tap arrangement of said equalizing filter unit is  
20    changed so as to restart reception signal equalizing steps  
21    from a preselected step prior to the present step thereof  
22    while said reception signal is equalized, depending upon a  
23    change state of the tap coefficient during the equalization  
24    of said reception signal; and further so as to repeatedly  
25    perform said operation, depending upon a change condition

26 of the tap coefficient while restarting the equalization of  
27 said reception signal.